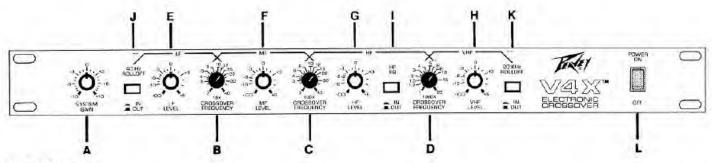
OWNERS MANUAL



V4X ELECTRONIC CROSSOVER

WARNING: TO PREVENT ELECTRICAL SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. BEFORE USING THIS APPLIANCE, READ THE OPERATING GUIDE FOR FURTHER WARNINGS.



FRONT PANEL

System Gain (A)

Used to optimize the interface gain between the V4X™ and the associated mixer. Control range is -10 dB to +10 dB with a detent in the "0" position.

Operation note

The 0 dB setting should be considered normal for many applications, however adjustments in the - (negative) positions will reduce system noise. Settings in the + (positive) positions will improve headroom with mixers having output capability less than +24 dBV, at the expense of added system noise.

Applications requiring low system noise such as studios, churches, etc. and where headroom is not critical, the noise level can be improved by operating the V4X system gain at levels below 0 dB. Example: A setting of -6 dB will reduce system noise by 6 dB. At the same time, system headroom will have been reduced by 6 dB. Such "compromises" should be considered normal in noise sensitive applications.

System headroom can be substantially increased with the V4X in applications where the mixer output is less than +24 dBV. To accomplish this, the optimum adjustment of the System Gain will usually be the difference between the V4X output rating (+24 dBV) and the mixer output rating. Example: If the mixer output rating is +18 dBV, the V4X System Gain should be set at +6 dB (24 -18 = +6 dB). If the mixer output rating is +24 dBV, the correct setting would be 0 dB. For mixers with output capability at +24 dBV or higher, System Gain settings above 0 dB will not improve headroom but will increase system noise.

Crossover Frequency Controls (B, C, D)

The V4X's four outputs are derived from three, third-order, state variable filters (18 dB per octave roll-off). Each filter is independent, with the -3 dB crossover frequency selected via a screwdriver control. The screwdriver adjustment is utilized to prevent accidental changing of the critical crossover frequency values.

Low-To-Mid (B)

Control range is from 20 Hz to 400 Hz and determines the -3 dB crossover point between the Low and Mid frequency bandpasses.

Mid-To-High (C)

Control range is from 200 Hz to 4 kHz and determines the -3 dB crossover point between the Mid and High frequency bandpasses.

High-To-Very High (D)

Control range is from 1 kHz to 20 kHz and determines the -3 dB crossover point between the High and Very High bandpasses.

Bandpass Level Controls (E,F,G,H)

Each bandpass section features a level control to compensate for the various loudspeaker efficiency ratings. All have range from off (- infinity) to +6 dB and each have a detent at the 0 dB (12:00) position which is the "unity gain" setting. Each is precisely calibrated to allow compensation for variations in loudspeaker efficiency ratings. (See Set Up Procedure Section.)

Operation Note

Normally the High Frequency bandpass is used for the horn/driver portion of a multi-way system since this bandpass has the unique equalization capability. Horn/driver combinations usually require some "padding" (negative dB setting) due to their higher efficiency ratings. Therefore, a good "starting" setting is -6 dB for the High Frequency level. For further explanation, see "High Frequency Equalization".

High Frequency Equalization ("HF EQ") (I)

High frequency EQ (high end boost) is used in two-way systems utilizing horn drivers to extend the usable frequency range by one octave or more. The V4X equalization frequency is factory preset and optimized for Peavey horn drivers and loudspeakers. The high frequency boost is automatically determined by the setting of the High Frequency Level control (G). When it is set at 0 dB or at any + dB setting, there is little or no high frequency boost added by engaging the HF EQ function. At - dB settings, the amount of boost added by the HF EQ function is approximately equal to the amount of pad.

40 Hz Rolloff (J)

Provides a 24 dB per octave roll off at 40 Hz to reduce subsonic rumble and to protect the low speaker from operating below its cutoff frequency. Affects only the Low Frequency bandpass. When not engaged, the low end rolloff is below 10 Hz.

20 kHz Rolloff (K)

Provides an 18 dB per octave rolloff at 20 kHz to protect horns and tweeters from supersonic signals which could be damaging.

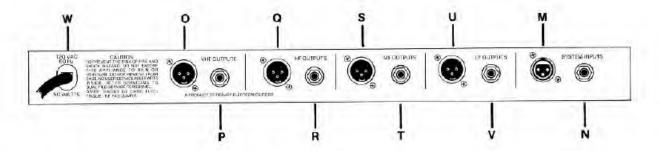
Affects only the Very High Frequency bandpass. When not engaged, the high end rolloff is above 50 kHz.

Power Switch (L)

Depress the switch to the "On" position. The red pilot light (LED) will illuminate indicating power is being supplied to the unit.

Operation Note

Always check for proper system connections before applying power. Upon initial hook-up, set all the bandpass level controls to the off position (infinity) before applying power; then slowly bring up the various levels to verify proper bandpass connections. A misconnected system could destroy loudspeakers.



REAR PANEL

System Input (XLR) (M)

An electronically balanced input (pin 3 positive) which can handle up to +24 dBV (16V RMS).

System Input (1/4") (N)

This is a "stereo", three connector type jack (ring, tip, sleeve) allowing the input to be "balanced" when used with a three connector type (ring, tip, sleeve) plug. The "tip" is the positive input.

When a standard two conductor phone plug is inserted into this jack, the system becomes unbalanced. Such connection should be made only when the associated equipment is in close proximity to the V4X.

Operation Note

The XLR input and ¼" input are in parallel. If a two conductor phone plug is used in the ¼" jack, both inputs become unbalanced. If a three conductor phone plug is used to patch to associated equipment which is unblanced, the entire input system becomes unbalanced.

Bandpass Outputs (XLR) (O,Q,S,U)

Each is transformer balanced (pin 3 positive) to allow quiet operation even with long multi-conductor snake cables.

Bandpass Outputs (1/4") (P,R,T,V)

Unbalanced outputs to be used when the associated power amplifiers are located near the V4X and share the same AC "mains" supply. These and all other signal grounds are isolated from chassis ground to minimize the possibility of ground loop hum.

Operation Note

These jacks may be used simultaneously with the XLR jacks without unbalancing the XLR outputs.

Line Cord (W)

For your safety, we have incorporated a 3-wire line (mains) cable on the back of the chassis with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the equipment without proper grounding facilities, suitable grounding adapters should be used. Less noise and greatly reduced shock hazard exists when the unit is operated with the proper grounded receptacles. **NOTE:** The above statement in reference to removing the ground pin is applicable only to 120 volt model products.

Set Up Procedure

To achieve proper system set up and to provide good system performance and reliability, all the system component efficiency ratings and crossover frequency values must be determined and used in the following procedure.

Step 1: The efficiency rating of the low frequency enclosure becomes the "reference efficiency" for the entire system. The level control associated with this bandpass should always be set at 0 dB. For two-way systems this will be the Mid level (F) and for three and four-way systems this will be the Low Level (E).

Example: A system's low frequency component has an efficiency rating of 110 dB at 1W, 1M. 110 dB is the "reference efficiency" for setup.

Step 2: For three and four-way systems the Mid Level (F) setting will be the difference in efficiency rating between the low and mid components.

Example: The system's mid frequency component efficiency is 109 dB at 1W, 1M. 110 - 109 = +1 dB. The Mid Level setting should be +1 dB.

Step 3: The High Level (G) setting will be the difference in efficiency rating between the low and high components.

Example: The system's high frequency component efficiency is 115 dB at 1W, 1M. 110 - 115 = -5 dB. The High Level setting should be -5 dB.

Step 4: In 4 way systems only, the Very High Level (H) setting will be the difference in efficiency rating between the low and very high components.

Example: The very high frequency component efficiency is 108 dB at 1W, 1M. 110 - 108 = +2 dB. The Very High Level setting should be +2 dB.

Step 5: The crossover frequency adjustments must be correct for the various components in the system. These values are usually the cut off frequencies of the associated components, but not necessarily. Crossover frequencies are sometimes selected to improve the "power sharing" for a given sound system application. These selections should never be below the cutoff frequency values.

Step 6: For three and four-way systems the 40 Hz filter (J) may be activated if desired. This feature protects sub-woofers from operating below cutoff and preserves headroom.

Step 7: For four-way systems the 20 kHz filter (K) may be activated if desired. It is recommended for use with any system.

Step 8: Activate the HF EQ (i) if required. (See High Frequency Equalization section.)

Step 9: Adjust the System Gain control (A) as described in the System Gain section (page 2).

Biamped System: Speakers: SP-1, SP-2, Internationals, Sloped Monitors

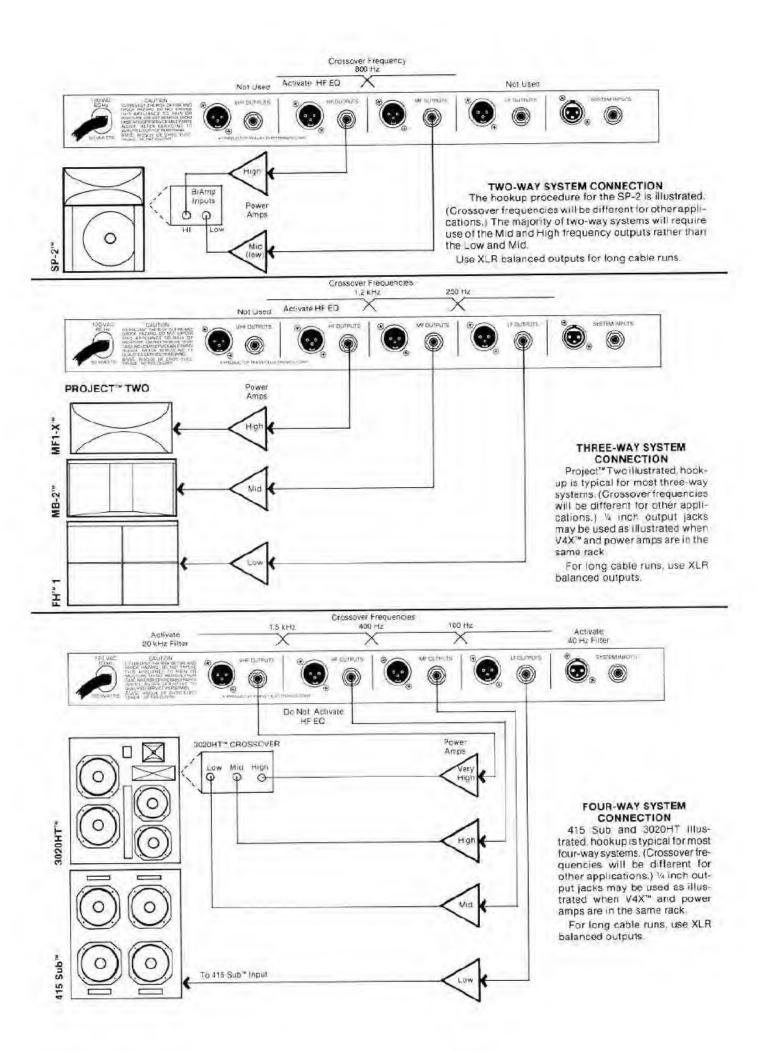
Not upod	
Not used	
Not used	
Sets low system rolloff frequency	40 to 100 Hz
Sets low system level	0 dB (reference)
Sets low to high crossover freq.	500 to 1200 Hz
Sets high system level	-6 to -12 dB
Activates high system EO	Switch in
Sets high system rolloff frequency	12 to 20 kHz
Not used	
Not used	
Not used	
Connect to low system power amplifier inputs	
Connect to high system power amplifier inputs	
Not used	
	Sets low system rolloff frequency Sets low system level Sets low to high crossover freq. Sets high system level Activates high system EO Sets high system rolloff frequency Not used Not used Not used Connect to low system power amplifier inputs Connect to high system power amplifier inputs

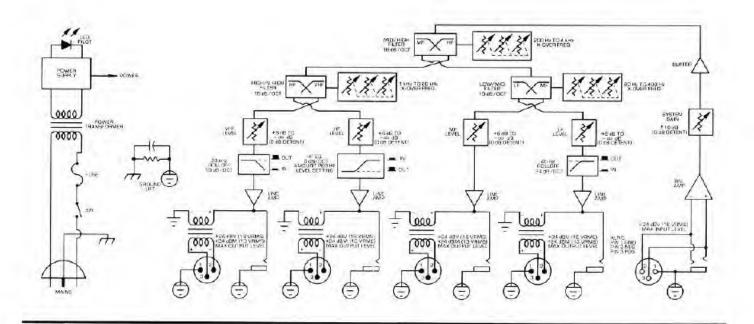
Triamped System: Speakers: Project 2, (FH-1, MB-2, MF1-X)

Control/Output	Usage	Typical Setting
40 Hz Rolloff	Activates low system rolloff	Switch in
LF Level	Sets low system level	0 dB (reference)
LF to MF Crossover	Sets low to mid crossover freq.	250 Hz
MF Level	Sets mid system level	0 dB
MF-HF Crossover	Sets mid to high crossover freq.	1200 Hz
HF Level	Sets high system level	-8 dB
HF EQ	Activates high system EQ	Switch in
HF-VHF Crossover	Sets high system rolloff frequency	16 kHz
VHF Level	Not used	
20 kHz Rolloff	Not used	
LF Output	Connect to low system power amplifier inputs	
MF Output	Connect to mid system power amplifier inputs	
HF Output	Connect to high system power amplifier inputs	
VHF Output	Not used	

Quadamped System: Speakers: 3020HT with 415 subwoofer

Control/Output	Usage	Typical Setting
40 Hz Rolloff	Activates low system rolloff	Switch in
LF Level	Sets low system level	0 dB (reference)
LF to MF Crossover	Sets low system to mid crossover freq.	80 to 150 Hz
MF Level	Sets mid system level	0 dB
MF-HF Crossover	Sets mid to high crossover freq.	400 to 600 Hz
HF Level	Sets high system level	0 dB
HFEQ	Not used	
HF-VHF Crossover	Sets high to v-high crossover freq.	1200 to 2200 Hz
VHF Level	Sets very high system level	0.dB
20 kHz Rolloff	Activates v-high system rolloff	Switch in
LF Output	Connect to low system power amplifier inputs	
MF Output	Connect to mid system power amplifier inputs	
HF Output	Connect to high system power amplifier inputs	
VHF Output	Connect to v-high system power amplifier inputs	





V4X CROSSOVER SPECIFICATIONS**

Controls and Switches System Gain Control 40 Hz Rollott Switch LF to MF X-Over Freq MF Level Control MF to HF X-Over Freq HF Level Control HF EQ Switch HF to VHF X-Over Freq VHF Level Control 20 kHz Rolloff Switch Power Indicator Power Switch Frequency Response

LF Output VHF Output Maximum Output Levels

Hum and Noise

1/-10 dB (detented @ 0 dB)
-3 dB @ 40 Hz, 24 dB/Octave (in LF output)
20 Hz to 400 Hz, 18 dB/Octave (screwdriver)
- (Infinity) to +6 dB (detented @ 0 dB)
200 Hz to 4 kHz, 18 dB/Octave (screwdriver)
- (Infinity) to -6 dB (detented @ 0 dB)
Pre-set HF equalization relative to HF level
1 kHz to 20 kHz, 18 dB/Octave (screwdriver)
- (Infinity) to -6 dB (detented @ 0 dB)
-3 dB @ 20 kHz, 18 dB/Octave (in VHF output)
Red LED Red LED Rocker Type Each output is -3 dB at the selected crossover frequency value Each output is -3 dis at the selected crossover inequency to Outputs are essentially flat within their relative passbands, 10, -0.5 dB @ 10 Hz (with 40 Hz rolloff defeated) 40, -0.5 dB @ 50 kHz (with 20 kHz rolloff defeated) 124 dBM, 13 VRMS into 600 Ohms 124 dBV, 16 VRMS into 10k Ohms Less than 0.05% T.H.D. @ +10 dBV, 3 VRMS, 20 Hz to 20 kHz. (X-over frequencies set @ 250 Hz, 1200 Hz, & B kHz. All level controls set at defent positions; HF EQ out; 40 Hz rolloff and 20 kHz rolloff filters in; 20 Hz to 20 kHz.

unweighted, 600 Ohm input termination)

102 dB below +10 dBV LF Output MF Output HF Output -96 dB below +10 dBV -97 dB below +10 dBV VHE Output -95 dB below +10 dBV +24 dBV, 16 VRMS (system gain @ 0 dB or lower. Maximum Input Level

Input Impedance Connectors

Inputs

Outputs

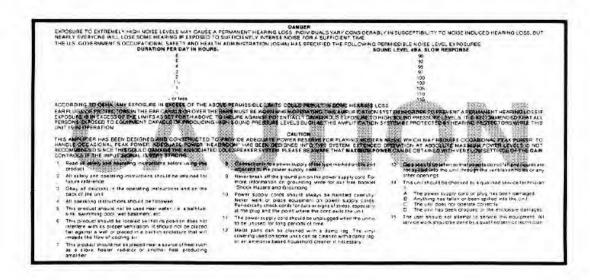
other level controls sat at detent positions or lower) 20K Ohms balanced, 10K Ohms unbalanced 3 conductor w" phone jack, balanced/unbalanced XLR female (pin 3 positive), balanced (phone jack and XLR

connector are bridged/parallel) 2 conductor %" phone jack, unbalanced. XLFI male (pin 3 positive), transformer balanced.

(Phone jacks and XLR connectors are independent) (All signal grounds are common and "lifted" from chassis ground

Power Requirements Size and Weight

120 VAC, 50/60 Hz, 20 watts (domestic model) 19" standard rack mount, 1%" height, 9" depth; 8 lbs.



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Ces clauses de garantie ne sont valables qu'aux Etats-Unis et au Canada. Dans tous les autres pays, les clauses de garantie et de maintenance sont fixees par le distributeur national et assuree par ful seion la legislation en vigueur.

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ONE-YEAR LIMITED WARRANTY/REMEDY

PEAVEY ELECTRONICS CORPORATION ("PEAVEY") warrants this product, EXCEPT for covers, footswitches, patchcords, tubes and meters, to be free from defects in material and workmanship for a period of one (1) year from date of purchase, PROVIDED, however that this limited warranty is extended only to the original retail purchaser and is subject to the conditions, exclusions and limitations hereinafter set forth:

PEAVEY 90-DAY LIMITED WARRANTY ON TUBES AND METERS

If this product contains tubes or meters, Peavey warrants the tubes or meters contained in the product to be free from defects in material and workmanship for a period of ninety (90) days from date of purchase; PROVIDED, however, that this limited warranty is extended only to the original retail purchaser and is also subject to the conditions, exclusions and limitations hereinafter set forth.

CONDITIONS EXCLUSIONS AND LIMITATIONS OF LIMITED WARRANTIES.

These limited warranties shall be void and of no effect if:

a. The first purchase of the product is for the purpose of resale; or b. The original retail purchase is not made from an AUTHORIZED PEAVEY DEALER; or

c. The product has been damaged by accident or unreasonable use, neglect, improper service or maintenance, or other causes not arising out of defects in material or workmanship; or

d. The serial number affixed to the product is altered, defaced or removed.

In the event of a defect in material and/or workmanship covered by this limited warranty, Peavey will:

In the case of tubes or meters, replace the defective component without charge;

b. In other covered cases (i.e., cases involving anything other than covers, footswitches, patchdords, tubes or meters), repair the defect in material or workmanship or replace the product, at Peavey's option;

and provided, however, that, in any case, all costs of shipping, if necessary, are paid by you, the purchaser.

THE WARRANTY REGISTRATION CARD SHOULD BE ACCURATELY COMPLETED AND MAILED TO AND RECEIVED BY PEAVEY WITHIN FOURTEEN (14) DAYS FROM THE DATE OF YOUR PURCHASE

In order to obtain service under these warranties, you must:
a. Bring the detective item to any AUTHORIZED PEAVEY DEALER or AUTHORIZED PEAVEY SERVICE CENTER and present therewith the ORIGINAL PROOF OF PURCHASE supplied to you by the AUTHORIZED PEAVEY DEALER in connection with your purchase from him of this product. If the DEALER or SERVICE CENTER is unable to provide the necessary warranty service you will be directed to the nearest other PEAVEY AUTHORIZED DEALER or AUTHORIZED PEAVEY SERVICE CENTER which can provide such service.

b. Ship the defective item, prepaid, to:

PEAVEY ELECTRONICS CORPORATION International Service Center Highway 80 East MERIDIAN, MS 39301

including therewith a complete, detailed description of the problem, together with a legible copy of the original PROOF OF PURCHASE and a complete return address. Upon Peavey's receipt of these items

If the defect is remedial under these limited warranties and the other terms and conditions expressed herein have been complied with, Peavey will provide the necessary warranty service to repair or replace the product and will return it. FREIGHT COLLECT, to you, the purchaser.

Peavey's liability to the purchaser for damages from any cause whatsoever and regardless of the form of action, including negligence, is limited to the actual damages up to the greater of \$500.00 or an amount equal to the purchase price of the product that caused the damage or that is the subject of or is directly related to the cause of action. Such purchase price will be that in effect for the specific product when the cause of action arose. This limitation of liability will not apply to claims for personal injury or damage to real property or tangible personal property allegedly caused by Peavey's negligence. Peavey does not assume liability for personal injury or property damage arising out of or caused by a non-Peavey alteration or attachment, nor does Peavey assume any responsibility for damage to interconnected non-Peavey equipment that may result from the normal functioning and maintenance of the Peavey equipment.

maintenance of the Peavey equipment.

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In the event of any modification or disclaimer of express or implied warranties, or any limitation of remedies, contained herein conflicts with applicable law, then such modification,

disclaimer or limitation, as the case may be, shall be deemed to be modified to the extent necessary to comply with such law.

Your remedies for breach of these warranties are limited to those remedies provided herein and Peavey Electronics Corporation gives this limited warranty only with respect to equipment purchased in the United States of America.

INSTRUCTIONS - WARRANTY REGISTRATION CARD

1. Mail the completed WARRANTY REGISTRATION CARD to:

PEAVEY ELECTRONICS CORPORATION POST OFFICE BOX 2898 MERIDIAN, MISSISSIPPI 39302-2898

a. Keep the PROOF OF PURCHASE. In the event warranty service is required during the warranty period, you will need this document. There will be no identification card ssued by Peavey Electronics Corporation.

2. IMPORTANCE OF WARRANTY REGISTRATION CARDS AND NOTIFICATION OF CHANGES OF ADDRESS:

- a. Completion and mailing of WARRANTY REGISTRATION CARDS Should notification become necessary for any condition that may require correction, the REGISTRATION CARD will help ensure that you are contacted and properly notified.
- b. Notice of address changes If you move from the address shown on the WARRANTY REGISTRATION CARD, you should notify Peavey of the change of address so as to facilitate your receipt of any bulletins or other forms of notification which may become necessary in connection with any condition that may require dissemination of information or correction.

You may contact Peavey directly by telephoning (601) 483-5365.

4. Please have the Peavey product name and serial number available when communicating with Peavey Customer Service.



Features and specifications subject to change without notice.

Peavey Electronics Corporation / 711 A Street / Meridian, MS 39302-2898 / U.S.A. / (601) 483-5365 Telex: 504115 / Fax: 484-4278 #80301006 4/89